

DATE: Monday, December 23, 2002

*DB=USPT,PGPB,JPAB,EPAB,DWPI; PLUR=YES; OP=ADJ*

L1 procyanidins

END OF SEARCH HISTORY

10/027/035



WEST Search History

DATE: Monday, December 23, 2002

<u>Set Name</u> side by side	<u>Query</u>	<u>Hit Count</u>	<u>Set Name</u> result set
<i>DB=USPT,PGPB,JPAB,EPAB,DWPI; PLUR=YES; OP= ADJ</i>			
L5	L4 and hair	4	L5
L4	L3 and tocopherols	20	L4
L3	L2 and II	77	L3
L2	proanthocyanidins	427	L2
L1	procyanidins	171	L1

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1. 20020131942. 21 Dec 01. 19 Sep 02. Hair treatment products. Zulli, Fred, et al. 424/70.1; A61K007/06.

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1.

20020131942. 21 Dec 01. 19 Sep 02. Hair treatment products. Zulli, Fred, et al. 424/70.1; A61K007/06.

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L5: Entry 3 of 4

File: PGPB

Sep 19, 2002

DOCUMENT-IDENTIFIER: US 20020131942 A1

TITLE: Hair treatment productsAbstract Paragraph (1):

Hair treatment products comprising in an aqueous phase a mixture of (a) water soluble procyanidins and (b) oil soluble free tocopherols, both components having an affinity to the hair, protect the hair against damage on heat drying, against environmental influences and hair treatments, and they protect other components of said hair treatment products against oxidation and degradation.

Summary of Invention Paragraph (2):

[0001] The present invention relates to hair treatment products for protecting hair against damage on heat drying, against environmental influences and hair treatments as well as for protecting other components of said hair treatment products against oxidation and degradation.

Summary of Invention Paragraph (5):

[0004] Frequently, in cosmetics only oil soluble antioxidants are used, since quite a number of suitable substances are available, such as 3-tert.-butyl-4-hydroxyanisole or alpha-tocopherol.

Summary of Invention Paragraph (8):

[0007] Oligomeric procyanidins, isolated from grape seeds or other plant parts, are very good antioxidants, which are useful in cosmetics. Procyanidins are polyphenols on the basis of catechin und epicatechin.

Summary of Invention Paragraph (9):

[0008] Thus, the publication U.S. Pat. No. 5,648,377 discloses the use of oligomeric procyanidins in combination with carotinoids for combating radicals in foodstuffs, foodstuff complements, cosmetic and pharmaceutical preparations.

Summary of Invention Paragraph (10):

[0009] However, the use of oligomeric procyanidins is not unproblematic, since said compounds are only conditionally stable if dissolved in water. Therefore, so far the use of such oligomeric procyanidins was essentially limited to dry products such as capsules or tablets as foodstuff complements.

Summary of Invention Paragraph (11):

[0010] The publication EP-A1-1,086,693 discloses the stabilization of proanthocyanidins in various products, such as tablets, foodstuffs and cosmetics by means of vitamin B6. The disclosed proanthocyanidins are principally dimers, in contrast to the present invention which is mainly directed to the use of oligomers. Furthermore, vitamin B6 is a water soluble vitamin. The use of grape seed extract and vitamin B6 in cosmetics, such as shampoos, in said publication is exclusively made for stabilizing the proanthocyanidins. Protection of hair by combining procyanidins with pure tocopherol cannot be deduced therefrom, just as little as the affinity of such a combination to hair. The example of a hair tonic comprising vitamin E acetate does not give any protection to the hair, since vitamin E acetate does not have sufficient antioxidant activity. However, vitamin E acetate can be cleaved in the skin to form pure tocopherol which then shows certain activities for promoting hair growth.

Summary of Invention Paragraph (12):

[0011] The publication EP-A1-0,768,079 discloses the use of dimeric proanthocyanidins for promoting hair growth. Whereas the described product

additionally comprises free tocopherol, the publication does not disclose nor let deduce affinity of the product to hair, and thus does not disclose any protection of hair against radicals; which is not the purpose of said publication either.

Summary of Invention Paragraph (14):

[0012] The present invention is based of the surprising finding that oligomeric procyanidins in an aqueous solution are stabilized by the addition of tocopherols, which are introduced into the aqueous solution by means of cosmetic solubilizers, such as PEG-40 hydrogenated castor oil. On the other hand, stability of the tocopherols is improved by the presence of oligomeric procyanidins.

Summary of Invention Paragraph (15):

[0013] Thus, e.g., the antioxidant activity of a mixture of 0.5 percent by weight of oligomeric procyanidins and 5 percent by weight of tocopherol remains stable for more than 8 months. Furthermore, this mixture of antioxidants also shows a synergistic effect with respect to the inhibition of UV-A induced formation of toxic substances in squalene.

Summary of Invention Paragraph (16):

[0014] One object of the present invention is to provide a hair treatment product for protecting hair against damage on heat drying, against environmental influences and hair treatments as well as for protecting other components of said hair treatment product against oxidation and degradation.

Summary of Invention Paragraph (17):

[0015] Another object of the present invention is to provide such hair treatment product which are based on an aqueous formulation and which are either a "leave on" product, i.e. a product which remains on the hair, or a "rinse off" product, i.e. a product which is washed out.

Detail Description Paragraph (2):

[0016] The above and other objects are achieved by a hair treatment product for protecting hair against damage on heat drying, against environmental influences and hair treatments as well as for protecting other components of said hair treatment product against oxidation and degradation, said hair treatment product comprising in an aqueous phase a mixture of (a) water soluble procyanidins and (b) oil soluble free tocopherols, both components having an affinity to hair.

Detail Description Paragraph (3):

[0017] Preferably, the percentage of said water soluble procyanidins (a) is from 0.00005 to 5 percent by weight and the percentage of said oil soluble free tocopherols (b) is from 0.00025 to 10 percent by weight.

Detail Description Paragraph (4):

[0018] Preferably, said water soluble procyanidins (a) are present in oligomeric form, and comprise 10 to 50 subunits.

Detail Description Paragraph (5):

[0019] It is known that hair is damaged by oxidative stress, such as, e.g., by UV irradiation. However, there are hardly any investigations with respect to the damages caused by heat drying of hair, particularly by means of hair dryers.

Detail Description Paragraph (6):

[0020] Surprisingly, it was now found that such hair drying may heavily damage hair, especially in view of the fact that such a treatment is carried out very often.

Detail Description Paragraph (7):

[0021] The damage is mainly caused by the activation of oxygen dissolved in the water film on the wet hair by the heat, that is that ROS (Reactive Oxygen Species--reactive oxygen molecules) may be formed. The ROS, e.g. singlet oxygen or oxygen radicals, then react with the constituents of the hair surface and thus damage the hair structure. Among other reactions, the proteins on the hair surface are oxidized and degraded. Said proteins may then be washed off from hair in the form of amino acids, peptides and proteins.

Detail Description Paragraph (8):

[0022] The following tests show in detail the surprising effects of the combination of active ingredients comprising oligomeric grape seed procyanidins and tocopherols. In particular they show:

Detail Description Paragraph (9):

[0023] Adsorption of tocopherol on the hair surface (Test 1);

Detail Description Paragraph (10):

[0024] Protection of hair against damage on heat drying (Test 2); and

Detail Description Paragraph (11):

[0025] Protection of hair against damage by sea water and UV irradiation (Test 3).

Detail Description Paragraph (12):

[0026] Further active ingredients of the hair treatment product of the present invention protecting hair against oxidation and/or degradation, particularly photo oxidation, are e.g.: vitamin C and vitamin C derivatives, vitamin A and vitamin A derivatives, perfume oils, unsaturated lipids and proteins.

Detail Description Paragraph (15):

[0028] The following tests were carried out with commercially available European hair and the following combination of active ingredients:

Detail Description Paragraph (18):

Adsorption of Tocopherol on the Hair Surface

Detail Description Paragraph (19):

[0030] 2 g of hair were incubated in 20 ml of the dilution with stirring for 10, 20, and 60 minutes, respectively. Thereafter, the hair was rinsed with water and air dried. Then, the hair was extracted with 50 ml isopropanol each. The extracts were then vacuum dried and thereafter dissolved in 1 ml ethanol. The tocopherol content was determined by HPLC analysis.

Detail Description Paragraph (21):

Protection of Hair Against Damage on Heat Drying

Detail Description Paragraph (22):

[0031] The hair was first washed with a shampoo and rinsed. Then, the hair was incubated for 10 minutes in the dilution. Thereafter it was rinsed with water and dried by means of a hair drier. The dried hair was again sprayed with water and again dried by means of a hair drier. This procedure was repeated 4 and 9 times, respectively. The hair was then extracted with a 2% aqueous sodium dodecylsulfate solution. The extract was then filtered. The protein and peptide content of the extract was then determined by means of the method of Bradford. In the control the hair was treated the same way, except that the hair was incubated in water instead of in the dilution

Detail Description Paragraph (24):

Protection of Hair Against Damage by Sea Water and UV Irradiation

Detail Description Paragraph (25):

[0032] The hair was first washed with a shampoo and rinsed. Then, the hair was incubated for 60 minutes in the dilution. Thereafter it was rinsed with water and air dried. The dried hair was then irradiated with UV light (control: without UV irradiation). The hair was then extracted with a 2% aqueous sodium dodecylsulfate solution or with sea water. The extract was then filtered. The protein and peptide content of the extract was then determined by means of the method of Bradford. In the control the hair was treated the same way, except that the hair was incubated in water instead of in the dilution.

Detail Description Table CWU (1):

1 Ethyl Alcohol 30.0% Glycerine 40.0% Polyoxyethylene (40) Hydrogenated Castor Oil 10.0% Mixed Tocopherols 5.0% Procyanidins (Grape seed extract) 0.4% Water ad 100%

Detail Description Table CWU (2):

2 Results Incubation time Amount of tocopherol on 2 g of hair 10 minutes 0.1 mg 20 minutes 0.4 mg 60 minutes 1.0 mg

Detail Description Table CWU (5):

5 Preparations A. Hair shampoo with grape seed procyanidins and tocopherol Sodium Dodecyl Sulfate. 70% 12.00% Cocyl Amide Propylbetaine. 35% 7.00% Perfume 0.50% Glycerin 0.02% Ethyl Alcohol 0.02% Polyoxyethylene (40) Hydrogenated Castor Oil 0.01% Preservative 0.1-1.0% Mixed Tocopherols 0.005% Procyanidins (Grape seed extract) 0.0005% Water ad 100% B. Hair conditioner with grape seed procyanidins and tocopherol Cetyl Aryl Alcohol 4.50% Hexadecyltrimethylammonium Chloride 2.50% Dimethylsiloxane-Glycol Copolymer 5.00% Perfume 0.50% Citric Acid for pH 3.5 Glycerine 2.0% Ethyl Alcohol 1.0% Polyoxyethylene (40) Hydrogenated Castor Oil 0.5% Mixed Tocopherols 0.25% Procyanidins (Grape seed extract) 0.10% Preservative 0.1-1.0% Water ad 100% C. Hair tip fluid with grape seed procyanidins and tocopherol Dimethylpolysiloxane 25.00% Methylcyclopolsiloxane 71.00% Dimethylsiloxane-Glycol Copolymer 2.00% Perfume 1.00% Glycerine 0.2% Ethyl Alcohol 0.4% Polyoxyethylene (40) Hydrogenated Castor Oil 0.4% Mixed Tocopherols 0.05% Preservative 0.1-1.0% Procyanidins (Grape seed extract) 0.05% D. Hair spray aerosol with grape seed procyanidins and tocopherol Acrylic/Acrylate Copolymer 3.00% 2-Amino-2-Methyl-1-Propanol 0.70% Water 20.00% Glycerine 0.02% Polyoxyethylene (40) Hydrogenated Castor Oil 0.02% Mixed Tocopherols 0.001% Procyanidins (Grape seed extract) 0.0005% Methoxymethane 40.00% Water ad 100% E. Styling gel with grape seed procyanidins and tocopherol Carboxyvinylpolymer 1.00% Sodium Hydroxide solution. 30% 1.10% PVP/VA Copolymer 4.00% Glycerine 5.00% Ethyl Alcohol 2.0% Polyoxyethylene (40) Hydrogenated Castor Oil 1.0% Tocopherol 0.5% Procyanidins (Grape seed extract) 0.1% Preservative 0.1-1.0% Water ad 100% F. Conditioner with grape seed procyanidins, tocopherol and retinyl palmitate Cetyl/Stearyl Alcohol 4.50% Hexadecyltrimethylammonium Chloride 2.50% Dimethylsiloxane-Glycol Copolymer 5.00% Perfume 0.50% Citric Acid for pH 3.5 Polyoxyethylene (40) Ethyl/Stearyl Ether 1.00% Glycerin 2.0% Ethyl Alcohol 2.0% Polyoxyethylene (40) Hydrogenated Castor Oil 1.0% Mixed Tocopherols 0.001% Procyanidins (Grape seed extract) 0.5% Vitamin A Palmitate 1.00% Preservative 0.1-1.0% Water ad 100% G. Hair tonic with grape seed procyanidins, tocopherol and borage oil Ethyl Alcohol 30.00% Borage Seed Oil 2.5% Polyoxyethylene (60) Hydrogenated Castor Oil 1.00% Polyoxyethylene (40) Hydrogenated Castor Oil 1.00% Perfume 0.50% Mixed Tocopherols 0.25% Procyanidins (Grape seed extract) 0.25% Preservative 0.1-1.0% Water ad 100% H. Hair water for treating the scalp with grape seed procyanidins and tocopherol Polyoxyethylene (20) Sorbitan Monolaurate 2.0% Perfume 0.5% Glycerine 3.0% D-Sorbitol 8.0% Ethyl Alcohol 2.0% Polyoxyethylene (40) Hydrogenated Castor Oil 2.00% Mixed Tocopherols 1.0% Procyanidins (Grape seed extract) 0.1% Preservative 0.1-1.0% Water ad 100% I. Non-aerosol hair spray with grape seed procyanidins and tocopherol Acrylic/Acrylate Copolymer 3.00% 2-Amino-2-Methyl-1-Propanol 0.70% Ethyl Alcohol 10.00% Glycerine 0.6% Polyoxyethylene (40) Hydrogenated Castor Oil 0.3% Mixed Tocopherols 0.1% Procyanidins (Grape seed extract) 0.2% Preservative 0.1-1.0% Water ad 100%

## CLAIMS:

1. A hair treatment product for protecting hair against damage on heat drying, against environmental influences and hair treatments as well as for protecting other components of said hair treatment product against oxidation and degradation, said hair treatment product comprising in an aqueous phase a mixture of (a) water soluble procyanidins and (b) oil soluble free tocopherols, both components having an affinity to the hair.
2. A hair treatment product as set forth in claim 1 wherein the percentage of said water soluble procyanidins (a) is from 0.00005 to 5 percent by weight and the percentage of said oil soluble free tocopherols (b) is from 0.00025 to 10 percent by weight.
3. A hair treatment product as set forth in claim 1 wherein said water soluble procyanidins (a) are present in an oligomeric form.
4. A hair treatment product as set forth in claim 3 wherein said water soluble procyanidins (a) comprise 10 to 50 subunits.



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☐ 1. [20020172657](#). 12 Feb 02. 21 Nov 02. Hair-growing agent. Kamimura, Ayako, et al. 424/70.23; A61K007/075 A61K007/08.

☐ 2. [20020155085](#). 12 Feb 02. 24 Oct 02. Hair-growing agent. Kamimura, Ayako, et al. 424/70.23; A61K007/075.

☐ 3. [20020131942](#). 21 Dec 01. 19 Sep 02. Hair treatment products. Zulli, Fred, et al. 424/70.1; A61K007/06.

☐ 4. [20010036487](#). 20 Mar 01. 01 Nov 01. Proanthocyanidin-containing composition. Takahasi, Tomoya, et al. 424/732; 424/757 424/765 424/766 514/19 514/27 A61K035/78 A61K038/05 A61K031/7048.

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Term	Documents
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(4 AND HAIR).USPT,PGPB,JPAB,EPAB,DWPI.	4
(L4 AND HAIR).USPT,PGPB,JPAB,EPAB,DWPI.	4

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